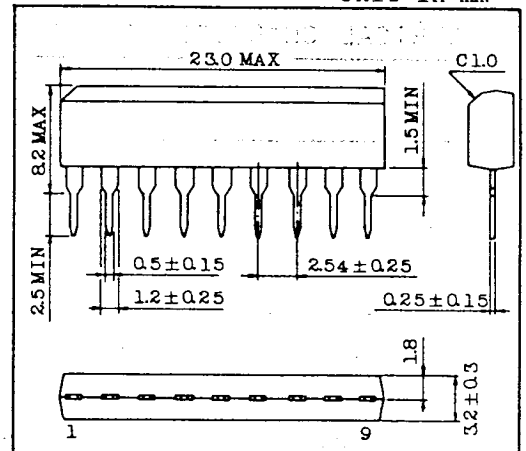
TA7303P

FOR FM IF SYSTEM

- 3 Stage Differential IF Amplifier.
- Differential Peak Detector.
- Muting Circuit.
- Signal Meter Drive Circuit.
- Single In-line Package : 9 pin.
- High Recovered Output Voltage : V_{OD}=500mV_{rms} (Typ.)
- Low Distortion : THD=0.1% (Typ.)
- Wide Operating Supply Voltage Range : V_{CC}=8～15V (Typ.)
- Signal Meter Drive Voltage : V_3=4V (Typ.)
- Variable Muting Point.
- Muting Off at Open Terminal.
- Simplified Single Coil Tuning.
- Very Few External Parts.

Unit in mm



Lead pitch is 2.54 and tolerance is ±0.25 against theoretical center of each lead that is obtained on the basis of No.1 lead.

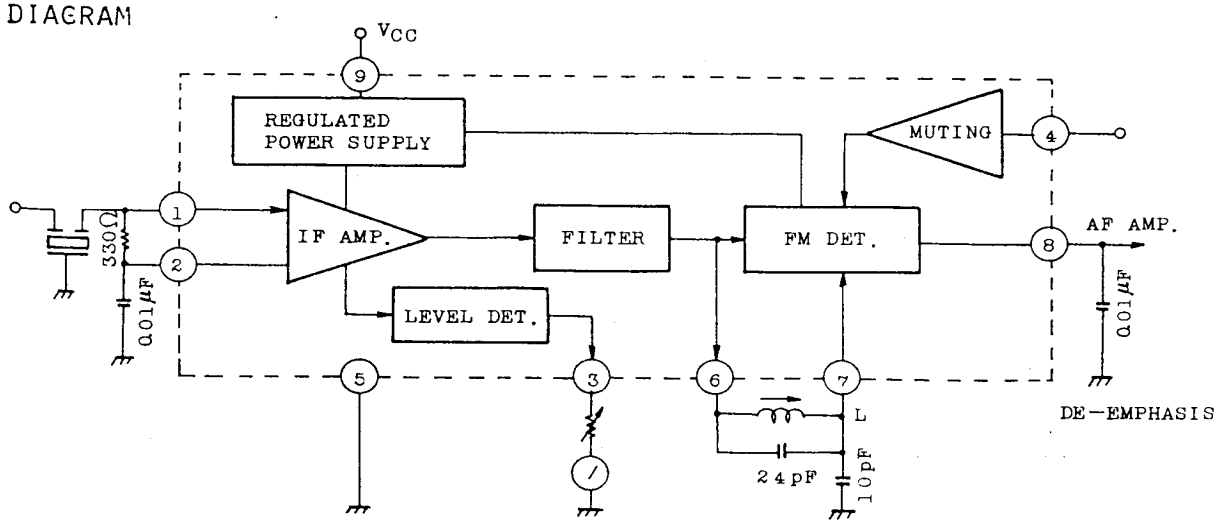
JEDEC	—
TOSHIBA	S9A-P

MAXIMUM RATINGS (Ta=25°)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	15	V
Input Voltage	V_{IN}	0.7	V
Power Dissipation (Note)	P_D	750	mW
Operating Temperature	T_{opr}	-25～75	°C
Storage Temperature	T_{stg}	-55～150	°C

Note: Derated above Ta=25°C in the proportion of 4mW/°C.

BLOCK DIAGRAM



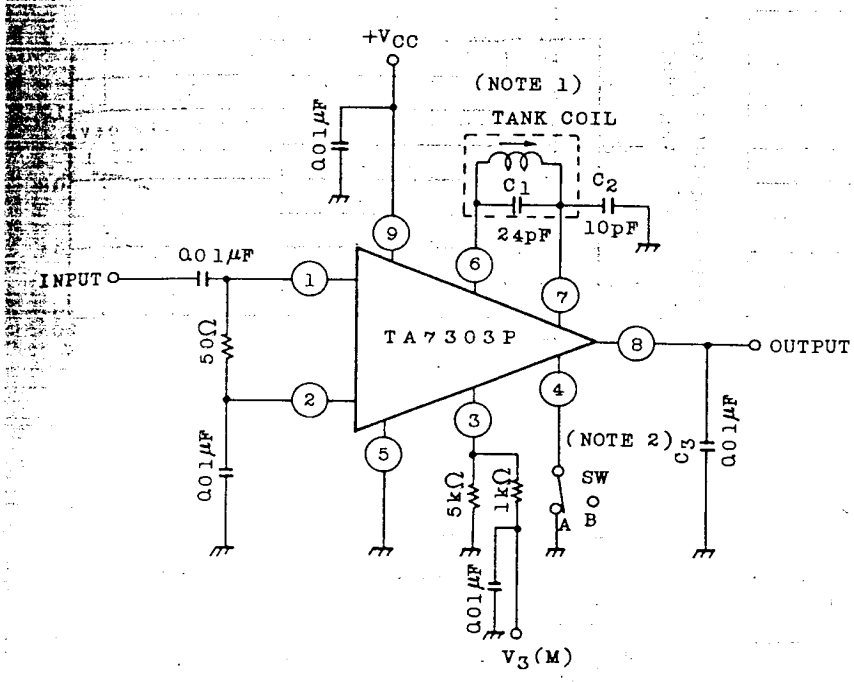
ELECTRICAL CHARACTERISTICS (V_{CC}=12V, f=10.7MHz, f_m=400Hz, Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current		I_{CC}	1	V_{IN}=0	10	14	18	mA
Input Limiting Voltage		$V_{IN(lim)}$	1	⊿F=±75kHz dev. -3dB LIMITING	-	50	55	dBμV
AM Rejection Ratio		AMR	1	FM: ⊿F=±75kHz dev. AM: 30% Mod. V_{IN}=80dBμV	-	50	-	dB
Recovered Output Voltage		V_{OD}	1	⊿F=±75kHz dev. V_{IN}=80dBμV	300	500	700	mV_{rms}
Total Harmonic Distortion		THD	1	⊿F=±22.5kHz dev. V_{IN}=80dBμV	-	0.1	-	%
Signal to Noise Ratio		S/N	1	⊿F=±75kHz dev. V_{IN}=80dBμV	-	75	-	dB
Muting Attenuation		MA	1	⊿F=±75kHz dev. V_{IN}=80dBμV, V_4=0	-	70	-	dB
Meter Drive Voltage		$V_{3(Max.)}$	1	V_{IN}=110dBμV	-	4	-	V
Input Impedance	Parallel Input Resistance	r_{ip}	-	f=10.7MHz, 1 pin-GND	-	5	-	kΩ
	Parallel Input Capacitance	c_{ip}	-		-	4.5	-	pF
Output Impedance	Parallel Output Resistance	r_{op}	-	f=10.7MHz, 6 pin-GND	-	1.3	-	kΩ
	Parallel Output Capacitance	c_{op}	-		-	4	-	pF
Output Resistance		R_O	-	f=400Hz, 8 pin-GND	-	7.7	-	kΩ

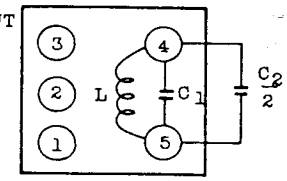
Note: V_{OD} Ranck (at ⊿f=±22.5kHz)

RANK	MIN.	MAX.	UNIT
B	90	150	mV_{rms}
C	130	210	mV_{rms}

TEST CIRCUIT 1



(NOTE 1)
TANK COIL
WIRE 2 UEW 0.08mmØ
TURNS 21
Qu 130±15%



$C_1 = 24pF$
$C_2 = 10pF$

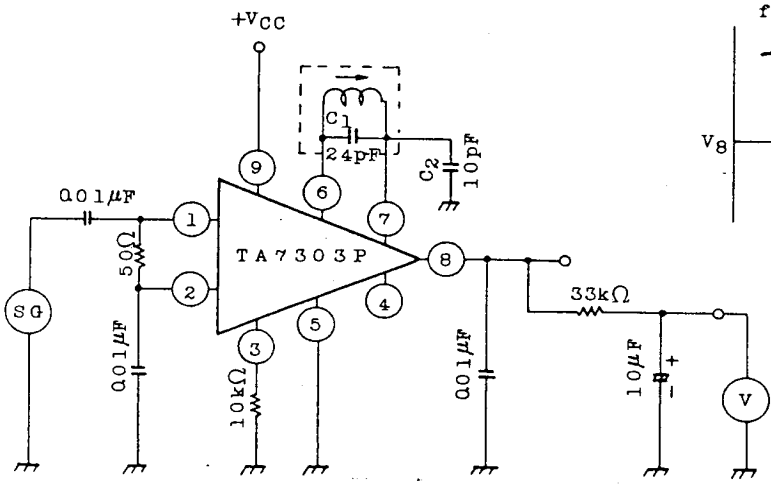
COVERED RESONANT FREQUENCY
10.7MHz±250kHz

$$f_O = \left(\frac{1}{2\pi\sqrt{L\left(C_1 + \frac{C_2}{1}\right)}} \right)$$

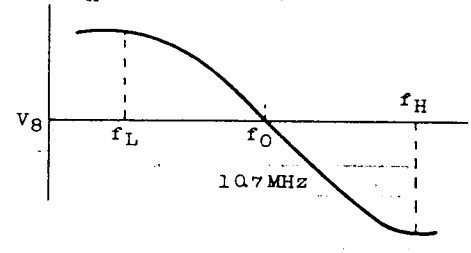
(Note 1) Tuning coil is adjusted to make recovered output voltage maximum at f=10.7MHz

(Note 2) SW ; To A for muting attenuation test only.

TEST CIRCUIT 2



f_L : LOWER PEAK FREQUENCY
f_O : CENTER FREQUENCY
f_H : UPPER FREQUENCY

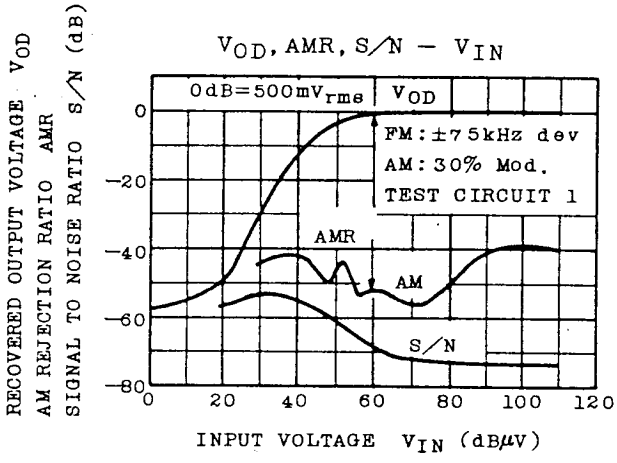


$$f_L = \frac{1}{2\pi\sqrt{L(C_1+C_2)}}$$

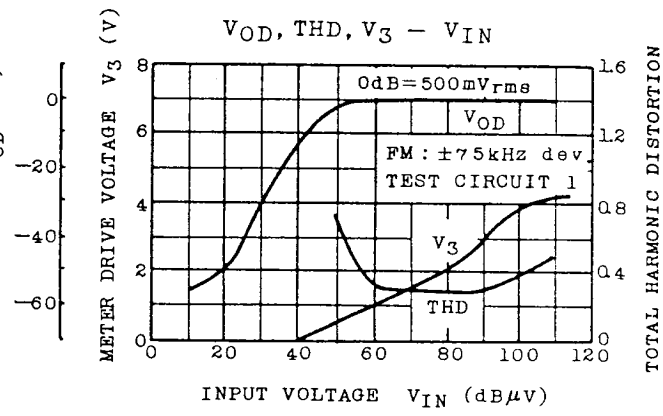
$$f_O = \frac{1}{2\pi\sqrt{L\left(C_1+\frac{C_2}{2}\right)}}$$

$$f_H = \frac{1}{2\pi\sqrt{LC_1}}$$

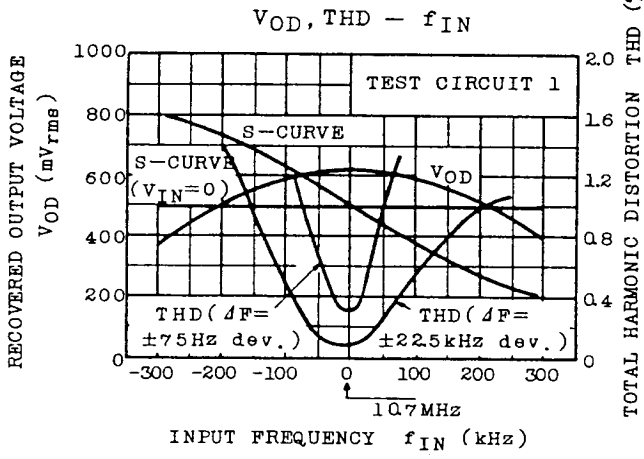
V_{OD}, AMR, S/N – V_{IN}



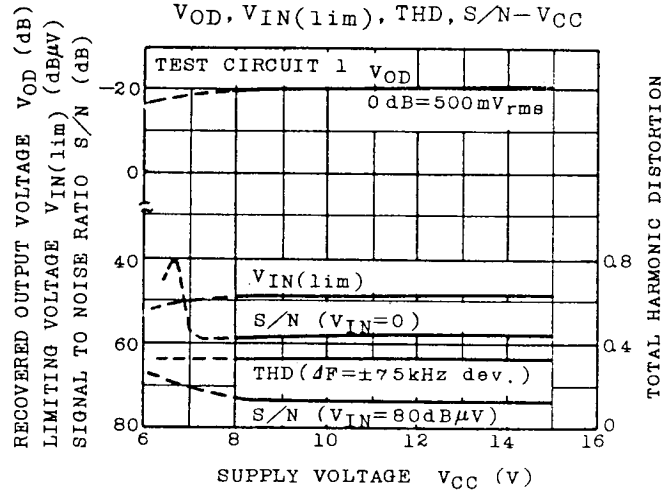
V_{OD}, THD, V_3 – V_{IN}



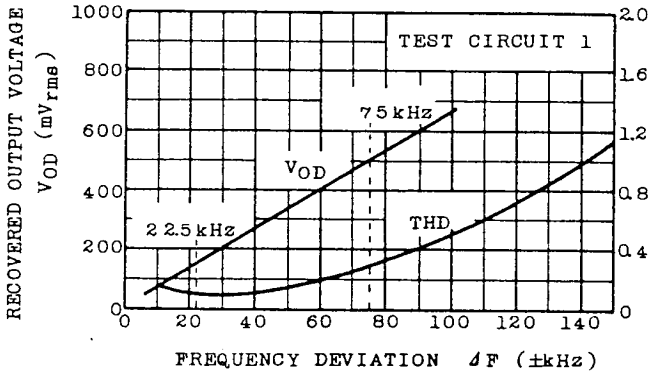
V_{OD}, THD – f_{IN}



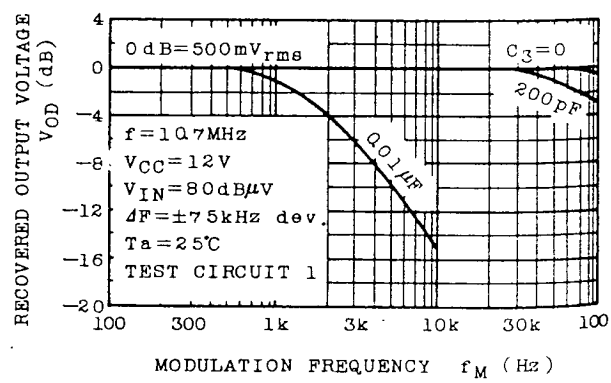
V_{OD}, $V_{IN(lim)}$, THD, S/N – V_{CC}



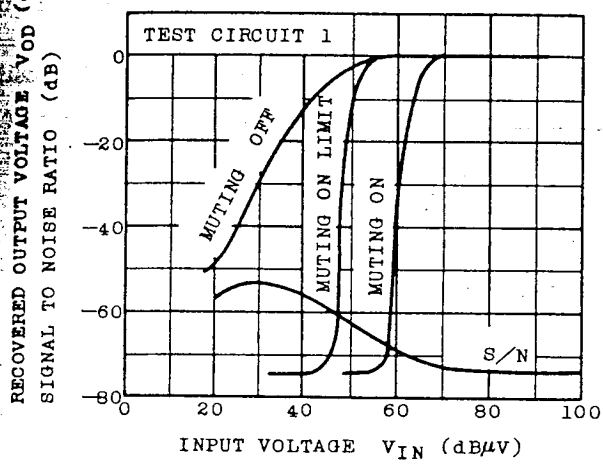
V_{OD}, THD – ΔF



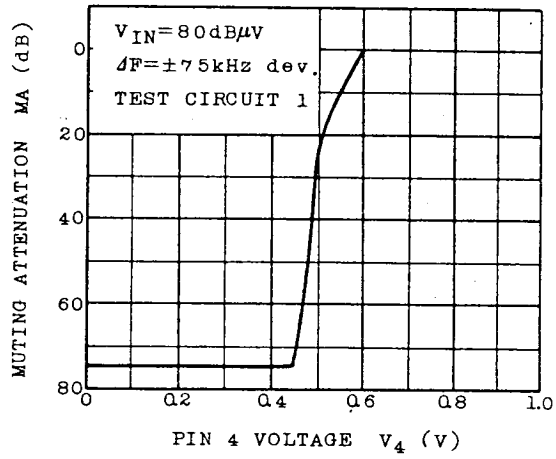
V_{OD} – f_M



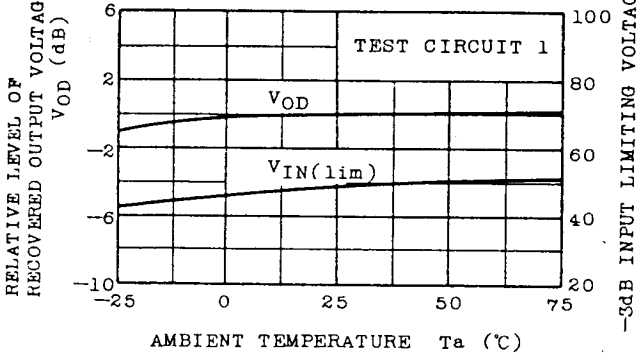
V_{OD}, S/N – V_{IN} (MUTING)



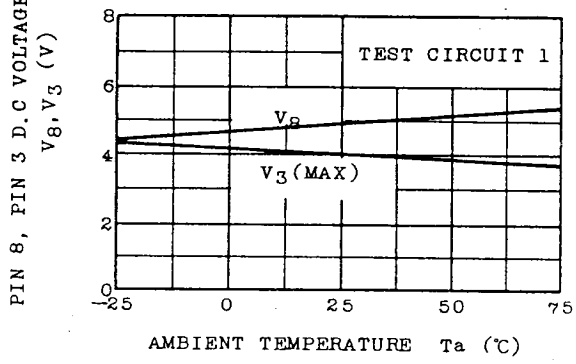
MA – V_4



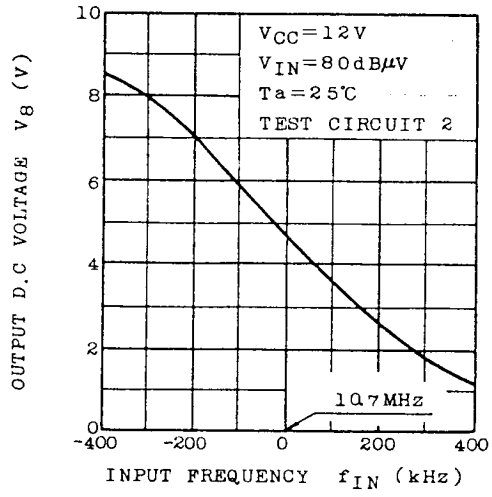
V_{OD}, $V_{IN(lim)}$ – Ta



V_8, V_3 – Ta



V_8 – f_{IN}



APPLICATION CIRCUIT